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TIMEX SINCLAIR USERS GROUP
MILE HIGH CHAPTER

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C/O FRANK HOLLAND, 1423 S. PEARL ST., DENVER CO 80210, 733-8103

SEPT. 1987. The meeting is on the 24th, at 7:30 PM, at my home.

MILE HI TSUG maintains a sub-board on THE KING'S MARKET BBS.
1-303-665-6091, 8-1-NONE. Accessible thru PC-PURSUIT.
MENU SELECTIONS TO GET TO THE SUB-BOARD ARE:
(1) CONTENTS
(2) INTERESTS & USER GROUPS
(3) TIMEX-SINCLAIR
General messages for club members are addressed to "ALL".

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We seem to have acquired several new people with TS-1000s who are very new to computing. Therefore , this seems a good time to review a lot of the basics about the ZX-81/TS-1000 machines. So, this month's newsletter is going to be devoted ENTIRELY to these machines.

HELPFUL HINT #1:

To prevent crashes because of wobble put some kind of support under the computer and let the ram-pack hang free.

HELPFUL HINT #2:

If you want to learn machine code - or do ANY work involving machine code, then get HOT-Z.

It is an assembler/disassembler/debugger that allows you to work directly with the data that is in the ram. As one reviewer commented, "HOT-Z allows you to walk on water".

Order it from any of the sources recommended.

HELPFUL HINT #3:

If you need a really good (i.e. it does a good job AND it is easy to use) data-base program, then get PRO/FILE.

Order it from Tom Woods.

HELPFUL HINT #4:

The voltage regulator in the TS-1000 has a bad tendency to overheat after a while. Carefully take the case apart (the screws are under the rubber feet) and drill several holes in the top of the case to improve ventilation.

FOR ADD-ON KEYBOARDS: RMG ENTERPRISES is carrying 2068/1000 cut & stick key labels. Vinyl, $2.50 per sheet / $6.00 for 3 / $17.50 for 10. $0.25 P&H per sheet.

A SCRAM (static CMOS ram) board is available from Silicon Mountain Computers and Tom Woods. It is similar to the old HUNTER BOARD.

The same company is releasing SRAM HI*REZ EXTENDED BASIC which will add 38 new commands and allow hi-rez BASIC commands and 64 (count them) columns.

REM GENERATOR

:

REM lines can be used to store machine code so that it can be SAVEd/LOADed as part of a BASIC program. The only problem is that you have to enter as many chars. in the REM line as the number of bytes used in the MC. Not bad if it's a short routine but a real bear if the code is several hundred bytes long. This routine will generate a REM statement of any length, for any line number.

Since this program uses machine code that is stored in a REM line, the first thing to do is create line 1, REM, 63 chars.

:

```
001  REM (63 chars)
010  FOR N=16514 TO 16576
030  INPUT A
040  PRINT A;" ";
050  NEXT N
```

:

RUN and enter the following numbers:

:

```
205   35   15   42   10   64
229  205  216    9   43  237
 75   50   64    3    3  197
  3    3    3    3  205  158
  9  193  209   35   35  114
 35  115   35  113   35  112
 35   54  234   11   11   35
 54    0  120  177   32  248
 54  117   52   42   12   64
 34   41   64  213  205   43
 15  193  201
```

:

Check the numbers on the screen against the listing. If the numbers are correct then change the program with the following lines:

:

```
001  REM - (MC gibberish)
010  REM USE IN IMMEDIATE MODE
020  REM (LINE #)
030  REM RAND (# OF BYTES)
040  REM LIST USR 16415 (32600)
```

:

SAVE the program at this point.

:

If you want to generate a line #1 REM you will have to move the MC. Use this program to move it to high ram.

:

```
050  POKE 16388,88
060  POKE 16389,127
070  FOR N=16514 TO 16576
080  POKE (N+16086),PEEK N
090  NEXT N
```

:

Lines 50 & 60 reset RAMTOP to protect the MC.

:

Now, for the explanation. Say that you want line 32 to be a REM statement with 100 bytes in it. Type the following, in immediate mode, pressing ENTER after each:

32 (ENTER)
RAND 100 (ENTER)
LIST USR 16514 (or 32600)
:
The routine will insert line 25 REM into the program and LIST it.
:
WARNING: ALWAYS make sure that there is another line, with a higher line number, with your generated REM - or the program will crash. It has something to do with trying to list a MC REM if it is the last line.

Some good sources - SEND FOR THEIR CATALOGS.
:

ZEBRA SYSTEMS, INC
78-06 JAMAICA AVE.
WOODHAVEN, NY
11421

RMG ENTERPRISES
1419 1/2 7th ST.
OREGON CITY, OR
97045

THOMAS B. WOODS
P.O. BOX 64
JEFFERSON, NH
03583

THE JOHN OLIGER CO.
11601 WIDBEY DR.
CUMBERLAND, IN
46229

WEYMIL CORP.
BOX 5904
BELLINGHAM, WA
98227-5904

AERCO
BOX 18093
AUSTIN, TX
78760

FRED NACHBAUR
SILICON MOUNTAIN COMPUTERS
C-12, MTN. STN. GROUP BOX
NELSON, BC V1L 5P1
CANADA

BYTE-BACK
RT. 4, BOX 54
LEESVILLE, SC
29070

Reprinted from the newsletter of the Indiana TSUG by way of the Vancouver newsletter.
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Here is a short utility for the 1000/1500. It will tell you: (1) Ram size (2) Program size (3) Display file size (4) Memory used by variables (5) Spare memory. Access by GOSUB 9200.
Just tack it onto the end of your program and it will tell you how much memory space you are using and how much is left.
:

```
9200 PRINT "RAM ";((PEEK 16388+256*PEEK 16389)-16384)/1024; "K"
:
9205  PRINT "PROGRAM ";PEEK 16386+256*PEEK 16387-16509
:
9210  PRINT "DISPLAY  ";PEEK  16400+256*PEEK  16401-PEEK  16396-
256*PEEK 16397
:
9220  PRINT "VARIABLES ";PEEK 16404+256*PEEK  16405-PEEK  16400-
256*PEEK 16401
:
9240  PRINT "SPARE ";PEEK 16386+256*PEEK  16387-PEEK  16412-256*
PEEK 16413
:
9240  PAUSE 150: RETURN
```

Many of our new people are using their TS-1000s for data sampling with the ZEBRA Analog to Digital converter.

There are several MC programs for doing hi-speed sampling but there don't seem to be any for lo-speed sampling, say in the range of once every several seconds.

Here is a very simple 8 byte MC routine that goes into a REM line and can be easily used with a BASIC program.

Create an 8 byte REM line and POKE the following numbers into the indicated locations:

:

```
16514, 219
16515,   0
16516,   6
16517, 127
16518,  16
16519, 254
16520,  79
16521, 201
```

:

The second number, which goes at loc 16515, is the port number.

:

The disassembly:

:

```
START   IN A,(N)
        LD B,7F
DELAY   DJNZ,DELAY
        LD C,A
        RET
```

:

The IN A,(N) reads the indicated port and starts the a-d conversion.

The LD B,7F and DJNZ is for the delay time necessary for the ZAD to make a conversion.

When you do a MC call on the TS1000 such as PRINT USR 16514, or LET A = USR 16514, the computer will return with the data that is in the accumulator (LD A,C).

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Sample BASIC program:

:

```
001  REM (gibberish)
010  DIM a(10)
020  FOR N=1 TO 10
030  LET A(N)= USR 16514
040  PAUSE (whatever you want)
050  NEXT N
```

:

This will place the data in A$. I'm sure that you can figure out a program to accomplish your needs.

Don't forget that we have quite a collection of newsletters from other clubs. They contain a lot of articles on homebrew hardware and modifications. Contact me if you have any specific questions.

Sample list: Voltage preregulators; Battery backups & portable power supplies; Circuits for composite video output; Tone generators; I/Os; Big keyboards; Add-on RAM/ROM for the 8-16k area: And a lot more.

ERRATUM:

When you do a MC call on the TS1000 su as PRINT USR 16514, or LET A = USR 16514, the computer will return with the data that is in the BC register pair. "LD A,C" and "B" is already zero from the DJNZ.

X-TERM*80, The New T/S1000 Series Telecommunications Program from Silicon Mountain Computers.

It is over 3 years since Timex pulled out of the computer market and prior to that time many (if not most) of us Timex users had switched to the T/S2068. The T/S2068 has had decent terminal (and Communications) software for some time now. There is SPECTERM-64 with its 64 columns and 1200 baud capability. There is Mterm II, the first to offer file transfers. There is also Z-TERM with its Mterm style menus and the OS-64 for 64 columns. All of the above use XMODEM protocol for error free file transfers. Why then would anyone want another terminal software package for the T/S1000? I suppose if you put that question to Fred Nachbaur, he might say "because it's there".

Well it's there and here comes ZX-TERM*80, "A FULL-FEATURED COMMUNICATIONS PROGRAM FOR THE ZX81, TS1000, and TS1500" as it is described on the cover page of the manual. Would you believe 40, 60 or 80 column display at the touch of a key? It's in there! Would you believe three windows that are adjustable in size or they can be removed for a normal (1 window) display? It's in there! This software is a direct decendant of the MINI-XMOD terminal program for the T/S1000 that has been around for some time. The terminal portion of the program is MUCH IMPROVED over its predecessor. No more inverse characters (in place of LF and DEL) on the screen. The improvements don't stop there, onscreen menus make this software easy to use. Those of you with MINI-XMOD experience will find the steps for uploading and downloading similar. Among other features of ZX-TERM*80 are the redifined keyboard with UPPER/lowercase, full sized printer support, transmit both programs and variables using Xmodem protocol, and there is more. The same programs supports both the Westridge 2050 and Byte-Back modems and it is self-relocatable. This is truly a remarkable program.

The ZX-TERM*80 documentation is extensive and well written and tells all. No secrets here, Fred has gone out of his way to give you all of the information necessary to get the most out of his software. There are just about 40 pages of usable info. I had no problem getting the program up and running on a T/S1500 and a T/S 1000. There is info included which explains how to use the software with your specific mass storage device. I personally use a Compusa DOS on my T/S1000 setup and I wasn't able to get the Compusa and ZX-TERM*80 to work harmoniously together and I am awaiting additional info from Fred about that. ZX-TERM*80 passed all other test with flying colors.

If there is a down side to this excellent software package, here it comes. YOU MUST HAVE A NVM (non-volatile memory) such as a Hunter Board or the new Silicon Mountain/ Larken release, the SCRAM card to use ZX-TERM*80. Also, no matter whether you use a ZX81, TS1000 or TS1500 (with 16K RAM onboard), YOU MUST HAVE ADDITIONAL RAM (at least 16K). Send any technical questions to Fred at the address given below. Retail price of the ZX-TERM*80 software is $25.00 and the SCRAM card is $39.95. In my opinion the ZX-TERM*80 communications program is GREAT. It does what such a program is supposed to do, which is make it easy to telecommunicate. IT DOES THIS WELL! For anyone using the T/S1000 online, this is certainly the way to go. I hope that there are enough T/S1000 aficionados left to truly make use of and appreciate this product. BY: Ed Grey

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From the Feb. ZX-APPEAL: By Glenn Read.

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There is a large quantity of software available for the ZX-81/TS100 but it is not often that software changes to the 8k ROM itself are made available.

Thomas J. Bent has done exactly that with his 8k ROM upgrade of the Sinclair operating system.

The upgrade consists of a new 8k ROM and a thorough documentation package. Changes in the new ROM are catagorized in two sections:-

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1. New features.
2. Fixes to existing bugs.

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Some of the more useful new features of the upgrade involve speed increases such as a fast initialization on power-up that gives a faster time to the 'K' cursor even with just 16K RAM, for 64K users there should be an impressive improvement.

The second speed change is making all command line entries automatically in fast mode, even if you were previously in slow or display mode. As soon as a command line is entered it will switch to fast.

Other improvements to existing functions speeds are a faster scroll and changes made to the display system so when you do a CLS , the screen is cleared without the painfully slow collapsing of the display file.

There have been changes made to the tape load routine so if there is a bad load, the machine is reset as if you had used NEW. This is supposed to clear memory much more elegantly than the existing system.

One very useful change enables you to create very large arrays (no, not the radio telescope type).

Finally, there has been a number of changes to the character display; the Q,W,V,K,O, and 0 have all been tidied up and the pound sign has been replaced with an apostrophe. This last change I have found not so useful as I use my '81 for circuit design and documentation, and it is an international standard to designate Negated logic levels with the pound sign. The mathematical/logical overscore being very difficult to print unless you own a laser printer.

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No more Bugs:-

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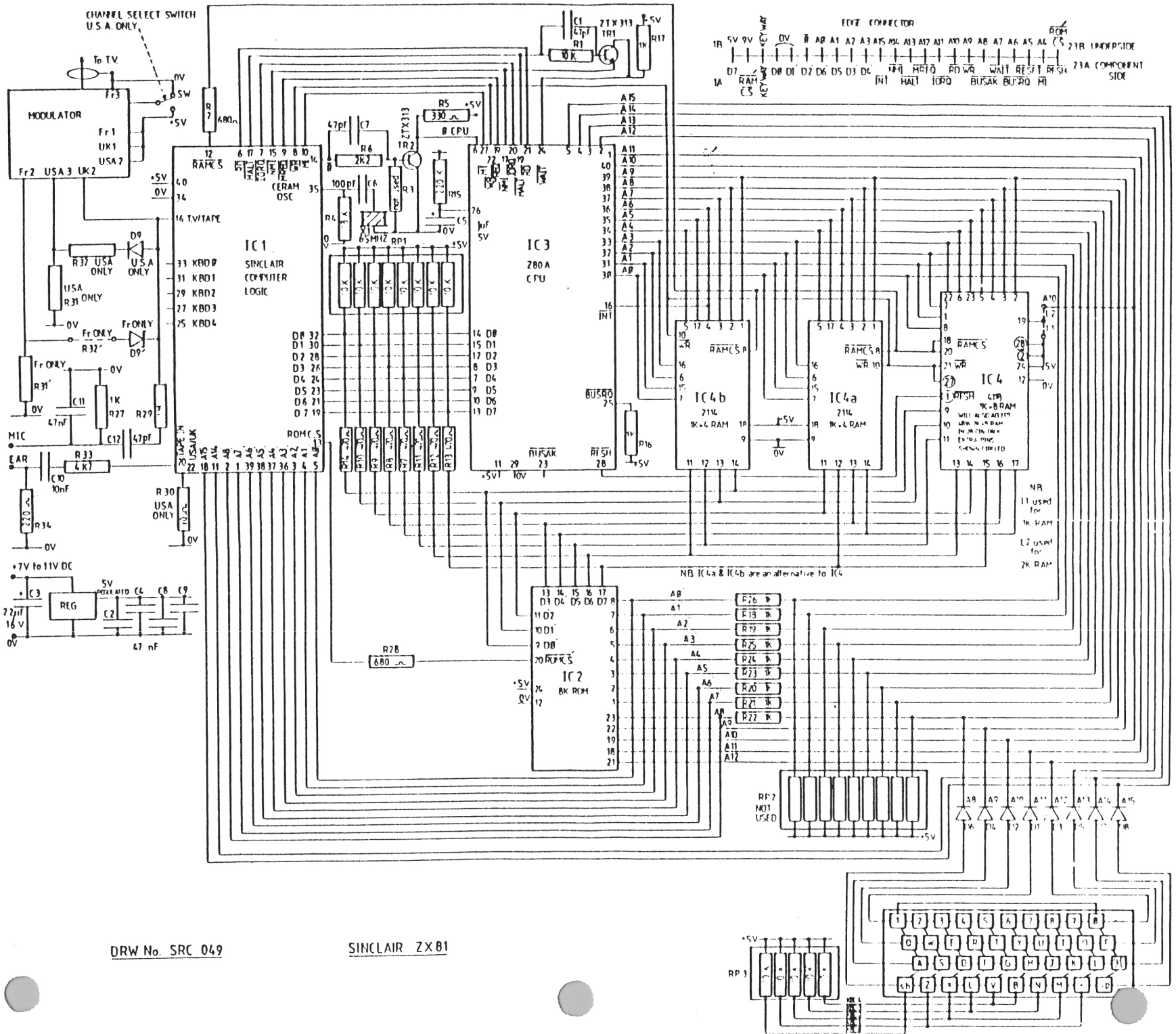
Existing bugs that have been fixed are the LPRINT nuisance and DIVIDE bugs - the nature of those bugs are covered in detail in the documentation for those who are fortunate enough not to have come across them.

The documentation gives listings of the machine code changes made and each of the improvements are also fully covered.

TILL NEXT MONTH Frank


CHANNEL SELECT SWITCH U.S.A. ONLY
To TV
MODULATOR
Fr1
UK1
USA2
Fr2 USA3 UK2
SW
IC1
SINCLAIR COMPUTER LOGIC
CERAM OSC
6.5MHz
IC3
Z80A CPU
IC4b
2114 1K x 4 RAM
IC4a
2114 1K x 4 RAM
IC4
4118 1K x 8 RAM
IC2
8K ROM
REG
MIC
EAR
R30 USA ONLY
R31 USA ONLY
R32 Fr ONLY
R33 4K7
R34 220
R37 USA ONLY
D9 USA ONLY
D9' Fr ONLY
C10 10nF
C11 47nF
C12 47pF
+7V to 11V DC
22mF 16V
47 nF
EDGE CONNECTOR
RP1
RP2 NOT USED
RP3
NB IC4a & IC4b are an alternative to IC4
NB
L1 used for 1K RAM
L2 used for 2K RAM
DRW No. SRC 049
SINCLAIR ZX81